

LOW-K INTERLEVEL DIELECTRIC LAYER (ILD) AND METHOD

Abstract

An interlevel dielectric layer (ILD) comprises a low-k dielectric layer; and a low-k dielectric film, deposited under compressive stress, atop the dielectric layer. The dielectric layer comprises a low-k material, such as an organosilicon glass (OSG) or a SiCOH material. The dielectric film has a thickness, which is 2% – 10% of the thickness of the dielectric layer, has a similar chemical composition to the dielectric layer, but has a different morphology than the dielectric layer. The dielectric film is deposited under compressive stress, in situ , at or near the end of the dielectric layer deposition by altering a process that was used to deposit the low-k dielectric layer.